Oct. 29, 1957 N. N. ENGELHARD ET AL 2,811,078

FOCUSSING AID FOR OPTICAL PROJECTION APPARATUS

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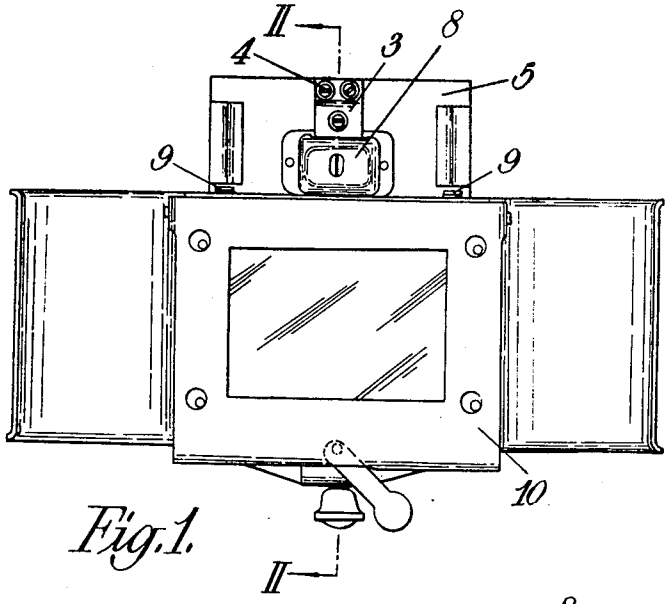


Fig. 1.

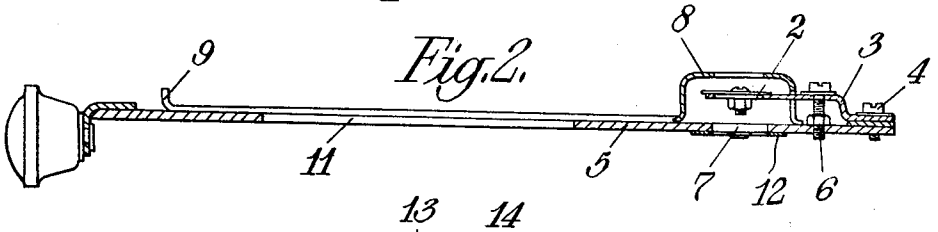


Fig. 2.

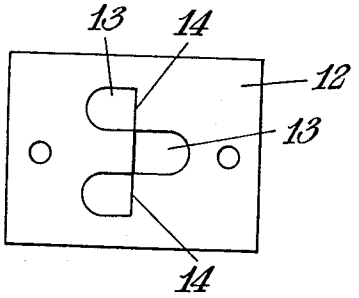


Fig. 3.

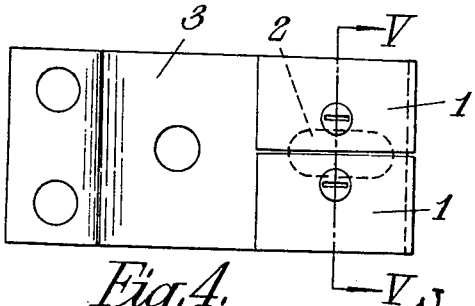


Fig. 4.

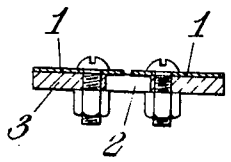


Fig. 5.

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FOCUSSING AID FOR OPTICAL PROJECTION APPARATUS

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3 Claims. (Cl. 88—24)

This invention relates to a focussing aid comprising a test object adapted to be positioned in the plane to be occupied by the film or other matter to be projected and a mask adapted to be positioned between the test object and image plane and there provide for different optical paths between the test object and image enabling the corresponding images to be differentiated when out of register. The test object and mask may conveniently be mounted upon a common carrier.

It has now been determined that the construction of the focussing aid can be facilitated, the focussing aid made more robust and focussing improved by constructing the mask as opaque panels extending from alternate sides of a line, the space on the side of the line opposite the panels being transparent.

The mask may conveniently be made by stamping apertures from an opaque panel, the apertures lying alternately on opposite sides of a straight line and substantially joining at the adjacent corners. Two or three apertures may conveniently be employed and the resulting panel mounted underneath the test object on a common carrier.

The test object will be a slit parallel with the aforementioned line. It will be understood that the expression "slit" includes the optical equivalent of a mechanical slit, such as a transparent line in an opaque panel.

An embodiment of this invention is shown in the accompanying drawings, of which:

Figure 1 is a plan view of a slide carrying the focussing aid and a detachable negative carrier for an enlarger,

Figure 2 is a sectional view on the line II—II of Figure 1, omitting the negative carrier,

Figure 3 is a plan view of the mask,

Figure 4 is a plan view of the focussing aid of Figure 1 and

Figure 5 is a sectional view on the line V—V of Figure 4.

The aid comprises a test object in the form of a slit defined between thin opaque plates **1** mounted over a window **2** adajcent one end of a doubly bent strip **3** secured by a bolt **4** to a slide **5**. An adjusting screw **6** serves to set the height of the slit over a window **7** in the slide. A shield **8** is mounted over the slit to prevent accidental disturbance. Slide **5** also carries guides **9** for locating a negative carrier **10** of known construction in register with a window **11**.

Mounted on slide **5** below window **2** is a mask in the form of a metal plate **12** formed with apertures **13** extending on alternate sides of a line **14** which is immediately opposite the slit formed between plates **1**. In use, with the slit in the optical axis of a projection apparatus in the plane to be occupied by a transparency to be projected, the beam of light transmitted by the slit is split into three beams. These project each an image of the corresponding part of the slit, which move into register as well as becoming sharp when the projection lens is brought into correct focus. When this stage has been reached, the transparency carried by carrier **10** is substituted for the focussing aid by pushing slide **5**.

We claim:

1. A focussing aid for optical projection apparatus comprising a test object in the form of a slit for mounting in the plane to be occupied by matter to be projected, a slide for mounting said test object and slit in operative relationship to the said matter to be projected, and a mask comprising opaque panels extending from alternate sides of a line parallel and in register with the slit, the adjacent space on the respective side of the line opposite the panels being transparent.

2. A focussing aid as set forth in claim 1, in which said mask is in the form of a single flat sheet from which apertures have been stamped, the apertures lying alternately on opposite sides of a straight line defining one boundary thereof, and substantially joining at adjacent corners.

3. A focussing aid as set forth in claim 1, in which said slit and mask are mounted on a common carrier with said line and slit spaced apart and in register.

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